

CLIMATOLOGICAL DATA FOR DECEMBER, 1911.

DISTRICT NO. 11, CALIFORNIA.

Prof. ALEXANDER G. MCADIE, District Editor.

GENERAL SUMMARY.

December was a cool month and deficient in precipitation. Along the coast the temperature was normal, except in the extreme northern and extreme southern counties. In the interior the temperature was below the normal, especially in the San Joaquin Valley where heavy frosts occurred frequently, and during the second and third decades frosty mornings prevailed almost continuously. The most important climatic feature of the month was the frost period extending from December 19 to the 28th, the cold culminating December 26. Elsewhere is given a report showing in detail the temperatures recorded in the orange belt and the injury done by the cold weather of that period. Ample warnings were given and orchardists throughout the State made use of protective methods to such a degree that they succeeded in minimizing the loss. The cold weather came to an end December 28 and was followed by a brief period of rainy weather, which it is thought also played an important part in reducing the loss.

The month was much cooler than December, 1910, and there was more rain. It may, however, be remembered that December, 1910, was a very dry month, and while the weather was unusually pleasant the conditions were most unfavorable for farming operations. December, 1909, while as cool as the current December, had nearly three times as much rainfall. The one widespread rain of the current month occurred during the last week of the year. There were no storms of unusual violence and the few disturbances which moved southward were not severe. There was less fog than usual and a marked absence of tule fog in the Great Valley.

The water supply was scanty. The long-continued dry condition had practically exhausted the normal supply and rivers and mountain streams were very low. The snow cover was limited in area and while reenforced at the close of the month was still below the normal in depth. There was, however, more snow during the current December than during December last year. Then the ground was bare, even at high elevations. This year there remained on the ground a moderate depth of snow, even at elevations below 5,000 feet, but it was light and dry.

TEMPERATURE.

The mean temperature for the State was 2.3° below the normal. The following table gives the mean temperature for California during the time for which such records have been kept:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
1897.....	44.4	$-1.2^{\circ}F.$	1905.....	45.3	$-0.3^{\circ}F.$
1898.....	44.4	$-1.2^{\circ}F.$	1906.....	47.3	$+1.7^{\circ}F.$
1899.....	45.8	$+.2^{\circ}F.$	1907.....	48.3	$+2.7^{\circ}F.$
1900.....	47.3	$+1.7^{\circ}F.$	1908.....	43.2	$-2.4^{\circ}F.$
1901.....	47.4	$+1.8^{\circ}F.$	1909.....	43.3	$-2.3^{\circ}F.$
1902.....	46.6	$+1.0^{\circ}F.$	1910.....	47.8	$+2.2^{\circ}F.$
1903.....	48.0	$+2.4^{\circ}F.$	1911.....	43.3	$-2.3^{\circ}F.$
1904.....	47.2	$+1.6^{\circ}F.$			

The highest temperature reported at any station was 91° at Blythe, on the 23d. This was 4° warmer than the highest temperature recorded during December, 1910. The lowest temperature was -26° at Tamarack on the 30th. This was 29° colder than the lowest temperature recorded during December, 1910, at the same station. The highest mean temperature was 55.8° at Avalon.

PRECIPITATION.

The average precipitation for California for December with departure from the normal is as follows:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
1897.....	Inches.	Inches.	1905.....	Inches.	Inches.
1898.....	1.75	-2.49°	1906.....	8.42	$+4.18^{\circ}$
1899.....	1.20	-3.04°	1907.....	5.41	$+1.17^{\circ}$
1900.....	3.03	-1.21°	1908.....	2.33	-1.91°
1901.....	1.68	-2.56°	1909.....	6.92	$+2.68^{\circ}$
1902.....	1.45	-2.79°	1910.....	1.87	-2.37°
1903.....	2.96	-1.28°	1911.....	2.05	-2.19°
1904.....	1.44	-2.80°			
	3.04	-1.20°			

The rain was well distributed geographically. The greatest monthly amount was 9 inches at Upper Mattole. At eight stations no rain was reported.

SNOWFALL IN THE MOUNTAINS.

December, 1911, was a month of light snowfall in the mountains of California. At nearly all of the reporting stations in the Siskiyou, the northern coast range and the northern half of the Sierra, more snow fell than during December, 1910; but it will be remembered the snowfall during that month was less than ever before known. The year 1910 ended with less snow in sight than in any previous year. The year 1911 ended with some snow on the ground, but nothing like as much as in a normal December. The run-off during December was light, and at various points streams were exceptionally low. The water supply was inadequate and there was some apprehension of a dry winter. However, the wet season is only beginning, and December snowfalls are of minor importance compared with those of January, February, and March.

SPECIAL COMPARATIVE SNOWFALL REPORTS.

Blue Canyon.—Mr. J. J. Knapp reports that 45 inches of snow fell during December, 1911, as measured in the snow bin and on the flat mat. The equivalent water value as determined by the new weighing gauge was 6.48 inches. All the snow was light and the thermometer was above 25° . The ground was frozen hard when the snow began, and the streams are exceptionally low; in fact, streams that should have 1,000 miner's inches in them at this season are dry now.

Snow on ground at Summit, Cal.

	Dec. 1.	Dec. 15.	Dec. 31.
1907.....	0	47	87
1908.....	24	32	21
1909.....	2	24	45
1910.....	7	4	4
1911.....	1	2	56

TABLE 1.—Climatological data for December, 1911. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.								
<i>Oregon.</i>																						
Klamath Agency	Klamath	4,169	3	21.0	.....	39	4†	— 6	29	33	2.90	.....	1.40	28.5	6	12	10	9	nw.	Edson C. Watson.
Klamath Falls	do	4,100	22	W. H. Heilman.	
Lakeview	Lake	4,825	28	Ralph E. Kooser.	
Merrill	Klamath	4,070	5	Mrs. Agnes Ritchison.	
Yonna	do	4,146	4	23.6*	.....	58*	1†	— 8*	21†	46*	0.75	.....	0.23	8.50	8	1	26	4	w.	Jacob Rueck.
<i>California.</i>																						
Alameda	Alameda	19	1	45.4	.....	68	13	— 26	25†	31	3.95	.....	1.10	0	7	15	7	19	w.	Chas. E. Sears.
Alturas	Modoc	4,460	7	25.8	.....	63	1†	— 8	21	51	0.59	.....	0.18	10.0	8	9	11	11	n.	Prof. C. B. Towle.
Angiola	Tulare	208	11	44.2	— 1.0	82	3	— 11	25	52	0.21	— 0.10	0.08	0	3	19	3	9	w.	Santa Fe Co.		
Antioch **	Contra Costa	46	32	51.5	+ 3.2	72	11	— 27	26	.....	1.29	— 1.25	0.45	0	5	21	0	10	.....	Southern Pacific Co.
Aptos **	Santa Cruz	102	26	47.7	— 2.0	69	1	— 25	26	.....	3.13	— 2.12	1.02	0	7	22	2	7	nw.	Do.	
Arrowhead Springs	San Bernardino	2,000	2	50.9	76	3	32	31	24	1.36	0.52	0	4	Dr. E. C. Day.	
Auburn	Placer	1,360	40	43.0	— 4.0	66	5	21	17†	32	0.92	— 5.15	0.25	5.5	7	19	0	12	ne.	Southern Pacific Co.		
Avalon	Los Angeles	30	1	55.8	.....	75	1	— 41	26	22	0.79	.....	0.29	0	4	29	0	2	w.	T. S. Manning.
Azusa	do	540	9	51.7	.....	90	2	— 26	30	48	0.56	— 0.98	0.31	0	2	30	0	1	sw.	A. P. Griffith.	
Bagdad	San Bernardino	784	8	51.4	.....	70	2	— 25	31	33	0.00	.....	0.00	0	0	0	0	0	.....	Santa Fe Co.
Bakersfield	Kern	404	22	48.7	+ 0.5	64	18	— 30	26†	26	1.02	+ 0.22	0.26	0	6	.....	.....	.....	.....	Do.
Barstow	San Bernardino	2,105	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. L. White.
Berkeley	Alameda	317	24	48.2	— 0.7	67	13	— 34	26†	19	2.51	— 2.28	0.68	0	9	18	3	10	ne.	State University.		
Biggs **	Butte	98*	12	45.4	+ 1.0	64	2	— 24	25	.....	1.28	— 1.92	0.40	0	6	21	0	10	s.	Southern Pacific Co.	
Bishop	Inyo	4,450	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. A. Chalfant.
Bishop Creek	do	8,500	1	25.5	.....	51	1	— 3	21	31	1.30	.....	0.60	13.0	4	23	0	8	.....	Paul E. Lodge.
Blocksburg	Humboldt	1,700	5	41.0	.....	64	2	— 20	25	31	6.41	.....	1.10	59.5	13	6	6	19	nw.	Victor Hope.
Blue Canon	Placer	4,635	12	38.7	— 2.6	68	3	14	24†	32	3.89	— 5.46	1.70	38.5	5	22	1	8	.....	Southern Pacific Co.	
Blythe	Riverside	268	2	45.4	.....	91	23	14	31	70	0.05	.....	0.05	0	1	27	1	3	n.	Ray W. Ward.
Branscomb.	Mendocino	2,000	11	42.4	.....	71	1	— 22	25	38	7.59	— 4.97	2.00	8.0	12	17	6	8	n.	A. J. Haun.	
Brawley	Imperial	—105	2	49.4	.....	76	3†	— 20	24	46	0.00	.....	0.00	0	0	0	0	0	.....	M. D. Witter.
Brush Creek	Butte	2,140	7	40.0	.....	60	5†	— 22	24†	30	1.51	.....	0.82	14.0	5	12	0	19	s.	Cal. Gas & Elec. Co.
Burney	Shasta	3,300	1	29.6	.....	59	2	— 7	29	43	1.97	.....	0.78	17.0	5	11	9	11	n.	Mrs. M. D. Chambers.
Calexico	Imperial	0	6	49.3	— 10.2	58	2	— 25	26†	37	0.00	.....	0.00	0	0	28	2	1	nw.	J. E. Peck.	
Caliente **	Kern	1,260	35	39.5	— 10.2	58	2	— 32	23	23	1.33	— 0.68	0.64	0	3	16	8	14	.....	Southern Pacific Co.	
Calistoga **	Napa	363	19	49.2	0	6.0	76	1	— 22	25†	1.15	— 5.28	1.00	0	2	25	0	6	w.	Do.		
Campbell	Santa Clara	217	14	46.1	— 0.8	68	1†	— 25	26†	35	1.89	+ 0.05	0.35	0	6	15	4	12	nw.	F. M. Righter.		
Camptonville (near)	Yuba	3,500	4	42.3	.....	72	2	— 20	25†	36	4.18	.....	1.10	34.0	8	11	12	8	ne.	Cal. Gas & Elec. Co.
Cedarville	Modoc	4,674	17	28.8	— 1.4	51	5†	— 2	29	33	0.72	— 1.15	0.15	15.5	9	12	19	0	w.	T. H. Johnstone.		
Chico	Butte	183	41	45.2	— 2.3	70	2†	— 22	26	40	2.01	— 2.21	0.24	6	19	0	10	n.	G. H. Stephenson.			
China Flat	Humboldt	600	12	40.7	.....	60	4	— 23	22	29	4.59	.....	1.52	4.5	9	14	8	9	w.	O. I. Westerburg.
Chino **	San Bernardino	714	19	47.0	— 5.2	69	14†	— 23	26	26	1.59	— 0.59	1.04	0	3	25	0	6	e.	Southern Pacific Co.		
Cisco **	Placer	5,939	40	36.1	+ 2.7	56	2	— 10	24	.....	5.00	— 3.50	1.20	50.0	7	18	0	13	.....	Do.
Clemont	Los Angeles	1,200	19	50.0	— 1.6	88	1†	— 27	26†	47	1.34	— 0.81	0.43	0	6	27	3	1	n.	F. P. Brackett.		
Cloverdale	Sonoma	340	8	47.0	.....	72	2	— 27	1†	44	3.06	.....	0.95	T.	10	20	0	11	n.	John O. Ogle.
Colfax	Placer	2,421	49	41.3	— 5.3	70	3	— 19	30	34	1.69	— 6.99	0.70	12.0	5	17	3	11	n.	Southern Pacific Co.		
Colusa	Tehama	60	8	44.8	.....	68	13	— 23	26	37	1.06	— 2.10	0.44	0.5	4	17	3	8	n.	C. D. McCormish.	
Corning **	San Diego	277	25	50.8	+ 3.5	72	1	— 27	26	30	0.82	— 3.17	0.30	T.	5	14	10	7	n.	Southern Pacific Co.		
Cuyamaca	San Bernardino	714	12	34.8	— 3.9	62	2	— 10	30	30	2.35	— 3.07	0.80	4.5	7	18	6	7	e.	L. L. Macquarie.		
Daunt	Tulare	4,000	7	38.4	— 7.2	58	2	— 13	30	36	4.60	.....	1.60	33.0	7	22	0	9	.....	D. L. Wishon.
Davisville	Yolo	51	39	44.8	— 4.0	68	12†	— 17	26	42	1.13	— 2.20	0.36	0	6	15	7	9	n.	S. H. Beckett.		
Deer Creek	Nevada	3,700	4	34.6	.....	65	2	— 8	30	36	3.58	.....	0.93	33.0	8	18	2	11	s.	Cal. Gas & Elec. Co.
Del Monte	Monterey	25	51.7	.....	71	1	— 32	25†	33	2.04	.....	0.74	0	5	22	0	9	n.	H. R. Warner.	
Delta	Shasta	1,138	26	40.4	— 3.8	65	2†	— 20	25	33	2.60	— 8.38	1.30	12.0	4	21	0	10	.....	Southern Pacific Co.	
Denair	Stanislaus	126	11	39.0	— 3.8	65	2†	— 15	27	35	1.66	.....	1.60	33.0	7	17	0	14	nw.	Cal. Gas & Elec. Co.	
Dobbins	Yuba	1,650	7	47.7	— 74	74	13	— 28	24	36	2.08	.....	0.84	2.5	6	20	5	10	s.	W. H. Dudley.	
Dudleys	Mariposa	3,000	2	36.5	.....	70	2	— 0	30	43	2.64	.....	0.85	18.0	6	15	6	10	nw.	Southern Pacific Co.
Dunnigan **	Yolo	65	34	50.8	+ 3.5	74	1	— 26	26	.....	1.17	— 2.66	0.47	0	4	18	1	12	n.	Southern Pacific Co.	
Dunsuir **	Siskiyou	2,255	22	38.7	— 1.0	74	3	— 12	29	33	3.34	— 8.09	0.90	23.5	7	21	0	10	n.	R. W. Durham.		
Durham	Butte	160	16	44.2	+ 0.5	70	2	— 19	25	40	1.38	— 3.30	0.42	0	6	18	5	8	s.	H. H. Kessler.		
El Cajon	San Diego	482	12	51.2	— 3.4	88	2	— 25	26	38	1.69	+ 0.31	0.50	0	9	26	3	2	nw.	Cal. Gas & Elec. Co.		
Electra	Amador	725	7	43.4	.....	62	1†	— 24	25	30	1.66	.....	0.83	0	6	21	4	6	.....	A. F. Schult.
Elsinore	Riverside	1,234	16	46.2	— 6.4	84	2	— 17	26	59	0.80	— 1.12	0.34	0	3	25	3	3	w.	Southern Pacific Co.		
Emigrant Gap	Placer	5,230	37	38.4	+ 1.5	65	3	— 17	20	35	2.78	— 5.36	2.00	37.0	6	22	4	5	n.	A. R. Moon.		
Escondido	San Diego	657	17	48.0	— 1.5	86	1	— 17	26	60	0.94	— 0.76	0.48	0	4	11	18	2	w.	U. S. Weather Bureau.		
Eureka	Humboldt	64	25	44.2	— 3.8	62	2	— 31	25	26	4.74	— 2.54	1.34									

TABLE 1.—Climatological data for December, 1911. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.								Precipitation, in inches.								Sky.	Prevailing wind direction.	Observers.		
				Departure from the normal.				Greatest daily range.				Departure from the normal.				Total snowfall, unmodified.				Number of rainy days, 0.01 inch or more.				
				Mean.	Highest.	Date.	Lowest.	Date.	Greatest.	Date.	Total.	Date.	Greatest.	Date.	Total.	Date.	Greatest.	Date.	Date.					
<i>California—Continued.</i>																								
Jamestown.....	Tuolumne.....	1,471	8	41.5	—	70	3†	19	26	39	2.60	—	1.70	1.10	10.0	7	21	2	8	sw.	Sierra Railway Co.			
King City.....	Monterey.....	333	24	42.4	—	6.6	74	27	14	25	55	0.40	—	1.30	0.35	0	2	26	0	5	s.	Southern Pacific Co.		
Lake Eleanor.....	Tuolumne.....	4,700	1	34.6	—	71	1	2	30	45	3.00	—	1.15	42.5	7	17	7	7	n.	O. J. Todd.				
La Porte.....	Plumas.....	5,000	17	35.0	+ 0.9	67	1	8	29	37	3.88	—	6.60	38.2	5	21	4	6	n.	Chas. W. Hendel.				
Le Grand.....	Merced.....	255	11	46.2	—	0.4	73	7†	21	21	32	0.70	—	0.12	0.30	0	3	28	0	3	w.	Santa Fe Co.		
Lemon Cove.....	Tulare.....	600	16	47.0	+ 0.6	72	1†	27	22†	42	1.01	—	0.63	0.45	0	4	20	9	2	n.	G. W. Sandige.			
Lick Observatory.....	Santa Clara.....	4,209	22	39.0	—	3.0	64	1	17	20	3.22	—	3.96	1.60	24.0	9	15	4	12	n.	The Director.			
Livermore.....	Alameda.....	485	40	49.2	—	1.3	72	10†	24	26	37	1.71	—	1.40	0.52	0	8	18	6	7	n.	E. G. Still.		
Lodi.....	San Joaquin.....	45	29	42.9	—	4.4	67	12	21	25	39	1.81	—	1.75	0.54	0	7	18	8	5	nw.	Ezra Fiske.		
Lone Pine.....	Inyo.....	2,728	6	37.0	—	0.4	69	6	4	29†	43	0.10	—	0.05	1.0	2	23	4	4	n.	G. F. Marsh.			
Long Valley.....	Lassen.....	4,400	3	27.6	—	51.	5†	—	2	29	27	0.55	—	0.22	7.0	6	9	12	10	ne.	A. G. Evans.			
Los Angeles.....	Los Angeles.....	293	44	55.4	+ 0.1	85	1	38	31	27	2.27	—	2.71	0.78	0	3	24	4	3	w.	U. S. Weather Bureau.			
Los Banos **.....	Merced.....	121	24	44.2	—	2.9	63	6	30	26	0.71	—	0.62	0.30	0	3	21	0	10	w.	Southern Pacific Co.			
Los Gatos.....	Santa Clara.....	600	24	49.0	+ 0.2	69	13	31	25	25	2.66	—	3.81	0.68	0	7	17	3	11	n.	P. H. McCullagh.			
McCloud.....	Siskiyou.....	3,410	1	34.2	—	63	2	2	29	36	2.07	—	0.78	19.8	7	15	0	22	s.	F. F. Spencer.				
Maddoel.....	do.....	4,258	4	23.7	—	59	3†	—	13	29	44	1.60	—	0.60	16.0	4	8	1	22	n.	Butte Valley L. Co.			
Magalia.....	Lassen.....	5,270	2	25.5	—	62	5	—	15	28	45	2.07	—	0.40	18.0	12	13	8	10	nw.	J. H. Williams.			
Mammoth Tank.....	Butte.....	2,321	7	44.4	—	73	1	21	23†	40	2.35	—	0.80	20.0	5	19	4	8	w.	Butte Co. R. R. Co.				
Marysville.....	Imperial.....	257	33	50.4	—	5.0	76	2	21	26	41	0.00	—	0.40	0.00	0	0	23	4	4	s.	Southern Pacific Co.		
Mecca.....	Yuba.....	67	40	46.0	—	3.9	69	12†	21	26	37	1.48	—	1.98	0.55	0	5	19	0	12	n.	Do.		
Menlo Park **.....	Riverside.....	-185	5	50.1	—	86	11	17	26†	51	T.	—	T.	0	0	21	8	2	nw.	E. A. Palmer.				
Merced.....	San Mateo.....	64	33	47.6	—	0.7	69	10	24	26	37	1.35	—	0.35	0.34	0	6	27	0	4	nw.	Southern Pacific Co.		
Mill Creek (1).....	Amador.....	173	37	47.6	—	0.7	69	1	20	25†	32	3.67	—	1.10	18.8	8	17	7	7	n.	Santa Fe Co.			
Milton (near).....	Calaveras.....	660	20	46.2	—	0.7	64	3	24	25	26	1.49	—	2.22	0.70	0	7	13	11	7	s.	Cal. Gas & Elec. Co.		
Modesto **.....	Stanislaus.....	90	39	45.1	—	3.0	62	1†	15	26	0.53	—	1.32	0.21	0	6	19	6	6	n.	J. H. Southwick.			
Mojave.....	Kern.....	2,751	34	33.9	-12.9	54	1†	19	28	18	0.00	—	0.00	0	0	29	1	1	n.	Do.				
Mokolumne Hill.....	Calaveras.....	1,550	18	44.4	+ 0.9	71	2	29	21†	28	2.30	—	3.17	1.10	10.0	9	16	7	8	n.	C. E. Prindle.			
Mono Ranch.....	Ventura.....	3,210	5	38.4	—	65	2	16	26	35	1.08	—	0.80	0.80	T.	3	24	4	3	w.	Herbert Lathrop.			
Montague.....	Siskiyou.....	2,450	23	30.1	—	8.0	65	3	28	36	1.40	—	0.31	0.36	6.9	8	12	11	11	s.	I. E. Deboy.			
Monterey **.....	Monterey.....	15	46	49.3	—	2.4	66	3	28	25†	—	2.34	—	0.44	0.76	0	8	17	12	2	se.	Southern Pacific Co.		
Monterio.....	Kern.....	4,500	12	43.0	—	8.7	70	12	18	25	36	1.84	—	0.18	0.64	0	7	17	3	11	nw.	John C. Knecht.		
Mount Tamalpais.....	Marin.....	2,375	12	44.5	—	3.1	61	2	30	30	18	1.22	—	0.31	1.04	2.9	12	13	8	10	n.	U. S. Weather Bureau.		
Napa City.....	Napa.....	20	34	46.2	—	0.3	64	1†	25	26	34	2.04	—	2.15	0.75	0	4	0	28	3	s.	Alex. Hull.		
Napa (S. H.).....	do.....	60	33	46.6	+ 0.1	70	13	29	24†	34	2.05	—	2.19	0.76	0	7	19	5	7	n.	W. H. Martin.			
Needles.....	San Bernardino.....	477	19	51.3	-1.5	71	5	29	26	37	0.00	—	0.45	0.00	0	0	31	0	0	sw.	Santa Fe Co.			
Nellie.....	San Diego.....	5,250	2	39.0	—	69	5	14	29	33	3.65	—	2.65	6.0	2	8	18	7	1	sw.	T. O. Bailey.			
Nevada City.....	Nevada.....	2,580	19	39.9	-2.0	81	2	14	25†	52	2.41	—	8.70	0.69	21.0	8	18	7	1	sw.	S. W. Marsh.			
Newcastle.....	Placer.....	970	18	42.0	—	7.5	74	2	16	26	0.95	—	2.45	0.28	0	6	24	0	7	se.	Southern Pacific Co.			
Newhall **.....	Los Angeles.....	1,200	34	42.0	—	7.5	74	2	16	26	0.95	—	2.45	0.28	0	6	23	0	8	n.	E. S. Wangenheim.			
Newman.....	Stanislaus.....	91	22	49.3	—	0.1	63	1†	33	19	23	1.23	—	1.65	0.19	0	5	23	0	8	n.	Cal. Gas & Elec. Co.		
Nimshew.....	Butte.....	2,500	7	40.2	—	68	1	18	29	36	2.23	—	0.70	17.5	6	14	10	7	s.	J. R. McIntosh.				
North Bloomfield.....	Nevada.....	3,200	14	43.3	-1.7	69	2	22	26	26	2.10	—	7.72	1.20	21.0	3	14	7	10	n.	U. S. Forest Service.			
North Fork.....	Madera.....	3,000	7	41.2	—	76	6	15	25	43	1.58	—	0.58	13.1	4	15	11	5	nw.	U. S. Forest Service.				
Oakdale **.....	Stanislaus.....	156	17	44.0	-0.9	63	3	24	25	—	1.90	—	1.23	0.33	0	6	19	8	4	n.	Cabot Observatory.			
Oak Grove.....	San Diego.....	2,751	1	48.4	—	71	1	14	26	31	1.17	—	0.60	0	7	18	2	11	n.	H. D. Brodie.				
Oakland.....	Alameda.....	36	35	48.8	-0.4	70	13	32	26	28	—1.97	—	0.30	0.28	0	7	27	4	0	n.	W. H. Duncan.			
Oceanside.....	San Diego.....	60	1	53.2	—	76	8	31	31	30	0.56	—	0.30	0.56	0	7	19	3	9	n.	U. S. Reclamation Service.			
Ojal Valley.....	Ventura.....	900	5	49.3	—	88	2	21	26	50	5.17	—	0.56	0	4	7	19	3	9	n.	F. T. Hale.			
Orland.....	Glen.....	254	29	46.0	-1.9	70	10†	24	25	37	0.90	—	2.20	0.23	0	7	19	3	9	n.	E. D. Fairchild.			
Orleans.....	Humboldt.....	520	8	44.4	—	70	6	23	28	35	6.95	—	1.50	9.0	14	11	0	20	n.	Western Pacific Co.				
Oroville (near).....	Butte.....	250	27	45.4	-3.4	66	13	25	24†	28	2.10	—	2.69	0.51	0	7	14	10	7	n.	Southern Pacific Co.			
Paermo.....	do.....	213	20	43.6	-1.6	67	14	25	25	33	2.10	—	1.32	1.00	0	3	13	15	8	n.	E. D. Sorver.			
Palm Springs.....	Riverside.....	584	22	50.4	-4.7	76	18	26	30	30	0.15	—	0.15	0.05	0	1	20	8	3	n.	Dr. F. W. Sawyer.			
Pasadena.....	Los Angeles.....	827	21	51.2	-2.8	86	1	29	26†	46	0.95	—	1.62	0.58	0	4	28	1	2	n.	Dr. E. H. Parnell.			
Past Robles.....	San Luis Obispo.....	800	24	43.4	-2.2	77	1	13	25†	57	1.74	—	1.25	0.80	0	6	21	3	7	n.	Tuolumne Water Power Co.			
Peachland.....	San Luis Obispo.....	190	15	45.4	-1.9	73	12†	23	26	43	2.50	—	2.60	0.49	0	9	19	5	7	n.	A. Baring-Gould.			
Penstock Camp.....	Tuolumne.....	3,750	4	—	—	64	3	18	25	34	2.10	—	5.73	0.55	9.0	7	19	5	7	n.	John Hyslop.			
Placeriverville.....	El Dorado.....	1,875	22	39.3	-2.7	64	3	18	25	34	2.10	—	1.00	0	6	19	4	8	n.	U. S. Weather Bureau.				
Point Lobos.....	San Francisco.....	250	18	51.3	+ 1																			

TABLE 1.—Climatological data for December, 1911. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from tide normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>California—Continued.</i>																				
Sierra Madre.....	Los Angeles.....	1,400	14	52.2	— 4.3	78	2	33	30	24	1.05	— 0.87	0.64	0	3	26	2	3	n.	Mrs. A. C. Gregory.
Sierraville.....	Sierra.....	5,000	1	24.4	.....	58	3	— 22	30	41	2.40	.....	0.90	24.0	5	11	11	9	sw.	C. D. Johnson.
Sisson.....	Siskiyou.....	3,555	22	31.6	— 2.9	65	2	0	28	45	2.60	— 4.68	1.00	22.0	5	17	9	5	n.	Southern Pacific Co.
Soledad **.....	Monterey.....	188	37	50.1	+ 0.8	65	3†	28	22†	28	1.20	— 0.30	0.41	0	7	14	0	17	s.	Do.
Southeast Farallon.....	San Francisco.....	30	8	52.2	.....	62	13	42	28	9	1.60	.....	0.59	0	11	16	6	9	nw.	U. S. Weather Bureau.
Sonora.....	Tuolumne.....	1,825	23	41.2	.....	67	2	21	24†	31	2.77	— 2.89	0.88	7.0	7	17	10	4	ne.	Chas. P. Jones.
Squirrel Inn.....	San Bernardino.....	5,280	1	35.4	.....	61	2	12	31	23	3.12	.....	0.85	6.8	5	24	4	3	n.	A. D. Frantz.
Stirling City.....	Butte.....	3,525	7	41.4	.....	68	12	10	29	38	2.95	.....	1.40	27.0	5	18	4	9	se.	Butte Co. R. R. Co.
Stockton (S. H.).....	San Joaquin.....	23	40	44.2	— 2.9	62	12	25	26	30	1.16	— 2.20	0.30	0	8	20	4	7	nw.	State Hospital.
Storey.....	Madera.....	295	11	40.0	— 4.8	60	1†	17	25	34	0.84	— 0.32	0.54	0	4	22	0	9	sw.	Santa Fe Co.
Suisun **.....	Solano.....	20	31	43.5	— 5.1	64	13	28	26	31	2.14	— 1.75	0.81	0	4	25	0	6	sw.	Southern Pacific Co.
Summerdale.....	Mariposa.....	5,270	15	37.4	— 2.1	70	1†	12	30	32	3.72	— 1.70	2.21	39.0	6	17	6	8	sw.	Mrs. J. E. Lowry.
Summit.....	Placer.....	7,017	38	27.4	— 3.1	55	2	— 5	30	25	6.60	— 1.28	1.50	66.0	8	17	0	14	sw.	Southern Pacific Co.
Susanville.....	Lassen.....	4,175	22	26.7	— 5.7	51	15	— 5	30	29	0.62	— 3.35	0.40	14.0	4	15	10	6	nw.	James Branham.
Tamarack.....	Alpine.....	8,000	5	18.0	.....	56	2	— 26	30	52	4.99	.....	2.00	62.0	8	20	2	9	n.	William Bennett.
Tehachapi **.....	Kern.....	3,964	34	36.0	— 3.5	60	2	14	30	....	1.60	— 0.36	0.80	10.0	3	0	0	0	sw.	Southern Pacific Co.
Tehama **.....	Tehama.....	220	40	47.4	— 1.4	70	5†	22	26	....	1.49	— 2.07	0.78	T.	3	21	0	10	n.	Do.
Tejon Rancho.....	Kern.....	1,500	9	40.4	.....	71	4	22	25	28	1.86	.....	0.76	T.	8	0	0	0	sw.	S. E. Bailey.
Three Rivers.....	Tulare.....	870	1	44.0	.....	82	2	23	22†	37	1.25	.....	0.57	0	4	17	4	10	sw.	E. D. Barton.
Towle.....	Placer.....	3,704	25	38.4	— 3.6	81	2	12	21	44	3.33	— 4.31	1.20	31.0	6	18	3	10	n.	Southern Pacific Co.
Tracy **.....	San Joaquin.....	64	31	44.7	— 4.9	58	1†	31	23†	....	0.92	— 1.24	0.50	0	3	16	3	12	nw.	Do.
Ukiah.....	Mendocino.....	620	18	43.6	— 1.1	68	1†	21	25	43	3.75	— 3.02	1.02	0.5	10	15	4	12	nw.	Dr. Geo. McCowen.
Upland.....	San Bernardino.....	1,750	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. P. Harwood.	
Upper Lake.....	Lake.....	1,350	20	42.8	— 2.8	78	12	20	25	53	2.33	— 3.25	0.81	3.5	10	14	5	12	nw.	C. M. Hammond.
Vacaville.....	Solano.....	175	23	48.0	— 0.4	73	10	22	26	42	2.19	— 3.69	0.64	0	6	17	4	10	sw.	G. O. Coburn.
Valley Springs **.....	Calaveras.....	673	22	46.3	— 0.7	66	2	26	25	....	1.54	— 2.73	0.66	0	7	16	8	7	s.	Southern Pacific Co.
Visalia.....	Tulare.....	334	23	42.8	— 1.8	74	2	20	26†	46	0.95	— 0.75	0.50	0	4	28	1	2	sw.	Santa Fe Co.
Warner Springs.....	San Diego.....	3,165	3	47.0	.....	79	2	16	25	52	1.10	.....	0.64	T.	4	24	5	2	sw.	Mrs. F. S. Sandford.
Wasco.....	Kern.....	336	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.	
Watsonville.....	Santa Cruz.....	23	15	44.0	— 7.3	70	13	15	26	49	3.20	— 0.89	1.00	0	8	13	15	3	w.	Spreckels Sugar Co.
Weitchpec.....	Humboldt.....	1,700	1	37.8	.....	69	4	23	25	35	8.86	.....	2.12	31.0	14	15	6	10	w.	M. E. Lathrop.
Westley **.....	Stanislaus.....	90	22	44.0	— 5.3	66	4†	20	22†	....	0.60	— 1.49	0.30	0	2	17	0	14	u.	Southern Pacific Co.
Wheatland.....	Yuba.....	84	24	44.1	— 1.0	67	12†	24	26	33	1.10	— 2.58	0.28	0	7	17	5	9	n.	Wm. Lombard.
Willows.....	Glenn.....	136	32	45.2	— 2.0	72	10	23	25	37	0.88	— 2.38	0.28	0	5	17	6	8	n.	L. C. Stiles.
Yosemite.....	Mariposa.....	3,945	7	31.1	.....	58	3	— 1	30	40	2.55	.....	0.65	23.0	6	16	7	8	s.	J. P. Kelly.

^{a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.}^{** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.}^{† Also on other dates.}^{T. Precipitation is less than 0.01 inch rain or melted snow.}

TABLE 2.—Daily precipitation for December, 1911. District No. 11, California.

Stations.	Watershed.	Day of month.																														Total.								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31								
Oregon.																																								
Klamath Agency	Klamath					.05																												1.40	2.90					
Klamath Falls	do																																							
Lakeview	Pitt																																							
Long Valley	do																																							
Merrill	Interior Drainage																																							
Yonma	do					.06	.08																											.08	.25	0.75				
California.																																								
Albertine	Sacramento																																							
Aguanga	Coast					.15	.10																														0.63			
Alameda	do					1.00	.50	T.																												3.95				
Alturas	Sacramento							.08																													.59			
Angels Camp	San Joaquin							.20																													1.26			
Angiola	do								.08																												0.21			
Antioch	do					.21	.33																													1.29				
Aptos	Coast					1.02	.64																													3.13				
Arrowhead Springs	do					.27	.52																													1.36				
Auburn	Sacramento																																					0.92		
Avalon	Ocean					T.	.29																														0.79			
Azusa	Coast						.25																														0.56			
Bagdad	Desert																																				0.00			
Bakersfield	San Joaquin					.06	.21	.26																												1.02				
Barstow	Desert																																							
Bear River	San Joaquin																																							
Bear Valley (1)	Sacramento																																					4.37		
Bear Valley Dam	Coast																																							
Belotta	San Joaquin					.12	.19																														1.86			
Ben Lomond	Coast					1.37	1.57																													5.62				
Berkley	do					.68	.45																													2.51				
Biggs	Sacramento					.25	.40																													1.28				
Bishop	Owens																																							
Bishop Creek	do																																						1.30	
Blocksburg	Coast					13	.53	.49																													6.41			
Blue Canon	Sacramento																																							
Blythe	Desert																																						0.05	
Boulder Creek	Coast					1.10	.55																														4.98			
Bowmans Dam	Sacramento																																							
Branscomb	Coast					.37	.65	.65																													7.59			
Brush Creek	Sacramento																																							
Burney	do																																							1.51
Butte Valley	do																																						0.00	
Calexico	Desert																																						1.33	
Caliente	do																																							
Calistoga	Coast																																						1.15	
Campbell	do					.30	.32	.15																													1.89			
Campo	do								.61																													2.08		
Camptonville(near)	Sacramento					.01			.05																												4.18			
Cedarville	Mountain Lakes																																						0.72	
Chester	Sacramento																																						2.60	
Chico	do					.05	.41																														2.01			
Chico (near)	do								.49																													1.65		
China Flat	Coast					.30		1.04																													1.59			
Cisco	Sacramento																																						5.00	
Claremont	Coast					.01	T.	.18	.43																											1.34				
Cloverdale	do					.04	.04	.78																												3.06				
Colfax	Sacramento					T.		.04																														1.69		
Colgate	do								.06																													2.00		
Colusa	do					.10	.44																														1.06			
Corning	Coast								.61																													1.11		
Cuyamaca	do					T.		.																																

TABLE 2.—*Daily precipitation for December, 1911. District No. 11—Continued.*

Stations.	Watershed.	Day of month.																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total	
California—Contd.																																		
Galt.	San Joaquin				.10		.29																											1.74
Georgetown	do																																	2.04
Gilroy	Coast				.49		.38																										5.55	
Gulta	do						.28	.37																										
Glendora	do																																	
Glen Ranch	do																																	0.92
Glenville	San Joaquin				.34		.57																										2.75	
Glenwood	Coast				1.10		.75																									3.95		
Gold Run	Sacramento																																	2.25
Gonzales	Coast				.45		.10	.10																								1.45		
Grass Valley	Sacramento				.06		.13																										2.77	
Greenville	do																																	2.5
Gridley	do				.08		.27																										1.18	
Groveland	San Joaquin				.16		.49																										3.34	
Guinda	Sacramento				.20		.40																										0.55	
Hanford	San Joaquin				.06		.08	.08																								0.05		
Head Dam	Sacramento																																	53.04
Healdsburg	Coast				.19		.48																										2.48	
Hearst	do				.20	.10	.40	.40																									4.40	
Heber	Desert																																	0.00
Helen Mine	Coast																																	
Hesperia	Desert																																	
Hetch Hetchy	San Joaquin																																	
Holcomb	Coast																																	
Hollister	do				.38		.07	.05																								2.15		
Hornbrook	Klamath																																	1.20
Hot Springs	San Joaquin				.42		.80																										3.88	
Hullville	Coast	T.	.12	.24	.72																													4.04
Idyllwild	do																																	
Independence	Owens																																	0.07
Indio	Desert	T.																																0.00
Inskip	Sacramento	T.																																4.88
Ione	San Joaquin																																	1.51
Jacksonville	do				.11		.12																										1.83	
Jamestown	do				.10		.20																										2.60	
Jenny Lind	do																																	1.10
Jolon	Coast				.20		.70																										1.32	
Julian	do																																	2.15
Kennedy Mine	San Joaquin																																	1.90
Kennett	Sacramento				.08	.15	.07																										3.43	
Kentfield	Coast				.65		.39																										4.07	
Kernville	San Joaquin																																	
King City	Coast																																	0.40
Knights Landing	Sacramento				.08	T.	.24	.04																								0.86		
La Grange	San Joaquin				.11																												0.91	
Lake Eleanor	do				.13		.37																										3.00	
Lakeside	Coast																																	1.15
La Porte	Sacramento	T.																																3.88
Lethrop	San Joaquin				.05		.18																										1.23	
Laurel	Coast				1.00		.70																									4.00		
Laytonville	do																																	
Le Grand	San Joaquin																																	
Lemoncooe	do				T.		.22																										1.01	
Lick Observatory	Coast				.51		.33	.02																								3.22		
Livermore	do	T.	.33		.31																												1.71	
Lodi	Sacramento				.08		.22																										1.81	
Lone Pine	Owens																																	0.10
Long Camp	San Joaquin																																	
Long Valley	Mt'n Lakes																																	0.55
Lordsburg	Coast																																	1.25
Los Alamos	do				.42		.70	.06																								1.27		
Los Angeles	do	T.			.14		.78																										1.85	
Los Banos	San Joaquin				.30																												0.71	
Los Gatos	do				.08		.48																											
Los Molinos	Sacramento																																	
Low Observatory	Coast				.70																												0.44	
McCloud	Sacramento				.25		.31																										2.07	
Macdoel	Klamath																																	
Madeline	Mt'n Lakes																																	1.35
Magalia	Sacramento																																	0.55
Mammoth Tank	Desert																																	
Mariposa	San Joaquin				.06		.20	.03																								1.65		
Marysville	Sacramento				.21		.20</																											

TABLE 2.—*Daily precipitation for December, 1911. District No. 11—Continued.*

† Daily measurements not made after 19th, but amounts included in total for month.

TABLE 2.—*Daily precipitation for December, 1911. District No. 11—Continued.*

Stations.	Watershed.	Day of month.																													Total.				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
<i>California—Contd.</i>																																			
Upper Lake.....	Sacramento.....			.02	.07	.21										T.	.34	.05																2.33	
Upper Mattole.....	Coast.....		.10	.32	2.30	.03																											9.00		
Vacaville.....	Sacramento.....	.25	.50																															2.19	
Valley Springs.....	San Joaquin.....					.08	.04																										1.54		
Visalia.....	do.....		.50																															0.96	
Warner Springs.....	Coast.....		.09		.27																													1.10	
Waco.....	San Joaquin.....																																		
Watsonville.....	Coast.....		.73	.04	.40																													3.20	
Weitchpec.....	Klamath.....		.35	.42																														8.86	
West Branch.....	Sacramento.....			.15																														3.83	
Westley.....	San Joaquin.....			.30																														0.60	
West Point.....	do.....		.03	.25																														4.64	
West Saticoy.....	Coast.....		.05	1.00																														1.32	
Wheatland.....	Sacramento.....		.23	.10																														2.10	
Willows.....	do.....		.29																																0.88
Yosemite.....	San Joaquin.....		.07	.40																														2.55	

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

II Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for December, 1911. District No. 11, California.

Date.	Lakeview, Oreg.		California.																									
			Alturas. \$		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independ- ence.		Los An- geles.		Mount Tarnpais.		Nevada City.		Porter- ville.		Red Bluff.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....		63	12			71	35	74	28	62	28	53	38	65	34	56	24	85	58	58	51	73	27	73	33	66	33	
2.....		63	17			67	32	74	31	62	29	62	36	72	37	57	24	82	57	61	50	81	29	76	35	68	37	
3.....		60	27			64	36	76	35	59	31	55	42	63	42	60	30	66	49	54	43	67	30	78	36	60	38	
4.....		49	18			50	38	74	40	54	42	62	46	61	42	57	34	64	53	48	44	52	29	79	33	55	43	
5.....		52	24			48	45	76	45	54	45	58	52	60	35	56	26	67	47	50	44	56	28	81	32	54	47	
6.....		46	32			47	37	72	38	54	45	52	45	58	45	46	26	56	50	45	40	47	38	82	34	56	47	
7.....		42	12			54	36	70	43	60	43	51	38	54	41	54	27	68	47	50	39	65	26	85	32	61	44	
8.....		49	13			60	30	73	56	65	42	53	38	58	39	57	30	73	56	55	48	64	25	84	33	63	40	
9.....		43	14			61	30	76	38	65	29	52	42	57	34	62	22	68	50	54	44	66	25	80	34	65	33	
10.....		43	8			64	30	72	35	67	30	50	38	57	33	62	30	66	50	59	51	67	24	79	31	66	40	
11.....		51	6			65	31	70	28	62	36	50	37	59	33	56	26	70	50	58	47	66	24	61	30	60	39	
12.....		44	10			67	29	65	41	67	52	52	38	58	30	56	24	72	45	60	46	68	22	59	31	67	40	
13.....		50	4			67	33	68	27	68	40	52	37	57	35	54	29	68	48	59	52	66	23	56	34	67	41	
14.....		54	11			65	33	65	28	60	35	54	41	60	36	50	26	66	46	58	49	62	25	58	33	57	39	
15.....		49	20			60	35	67	41	56	34	51	41	62	38	54	21	64	46	49	43	62	26	57	34	56	38	
16.....		43	14			45	28	65	32	56	35	50	41	54	35	50	19	63	46	45	35	44	25	55	32	50	33	
17.....		35	19			49	32	67	30	54	34	49	37	52	38	48	30	61	49	42	35	48	28	50	35	54	34	
18.....		30	-3			60	26	60	30	59	31	50	31	51	30	50	30	65	43	50	40	60	19	51	35	59	36	
19.....		35	2			56	28	58	38	48	30	48	40	56	30	49	18	61	43	53	35	54	22	49	39	50	34	
20.....		32	0			55	28	65	42	52	35	46	33	47	31	43	22	64	46	42	32	45	21	45	33	51	40	
21.....		33	-8			57	25	65	30	56	36	49	33	48	26	38	22	61	46	49	35	59	18	49	29	55	37	
22.....		42	0			60	31	58	35	52	30	50	37	55	31	63	29	66	41	56	41	63	24	56	27	54	38	
23.....		38	5			50	30	56	30	54	30	46	38	53	30	62	20	62	44	57	33	47	27	54	28	52	35	
24.....		33	7			43	23	59	20	51	25	45	33	50	28	38	16	56	45	40	32	45	17	50	30	50	28	
25.....		28	3			48	22	60	23	51	25	45	31	49	24	44	18	58	40	44	32	53	17	49	27	52	29	
26.....		40	2			52	25	66	23	48	23	48	35	52	28	45	12	60	39	47	37	51	17	53	24	48	26	
27.....		33	21			40	32	59	21	43	31	48	37	56	29	42	14	64	42	41	31	40	24	58	26	43	31	
28.....		34	2			40	29	59	28	46	36	42	34	49	36	37	15	56	40	40	36	30	40	28	50	36	46	32
29.....		29	-5			40	27	61	-	41	32	47	36	51	32	33	7	55	41	53	35	30	42	21	55	34	44	29
30.....		27	2			40	23	61	25	46	30	45	37	50	32	33	4	58	40	39	30	41	14	54	29	42	29	
31.....		33	12			40	27	59	21	46	36	43	40	49	35	39	12	56	38	42	35	36	29	55	30	39	36	
Mns.....		42.0	9.7			54.4	30.5	66.1	32.7	55.5	34.2	50.3	38.1	55.6	33.8	50.0	22.2	64.5	46.3	49.2	39.8	55.6	24.2	61.9	31.6	55.3	36.3	

Date.	California.																									
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	81	39	62	40	76	54	63	48	64	31	78	35	75	46	63	26	62	24	60	32	52	27	43	19	56	20
2.....	79	42	60	38	78	54	62	50	64	30	76	39	81	47	66	26	65	20	60	31	55	32	44	22	54	21
3.....	73	46	58	39	64	51	56	49	63	37	62	41	64	47	58	32	59	31	59	36	45	33	45	20	58	21
4.....	63	41	56	47	64	53	60	50	61	49	60	49	67	46	62	47	49	32	58	45	38	27	45	22	57	26
5.....	64	40	53	40	64	50	58	49	65	50	66	48	66	47	56	42	46	46	60	37	40	26	49	32	47	20
6.....	56	41	50	44	62	51	57	50	55	46	58	50	58	47	58	49	40	27	54	44	38	26	44	33	44	24
7.....	64	38	59	40	62	52	61	46	60	37	60	50	66	46	63	33	41	25	55	37	39	24	46	22	56	22
8.....	67	44	53	37	72	48	62	46	64	34	64	48	68	48	64	32	48	28	57	31	38	22	40	16	53	19
9.....	67	37	61	36	64	48	61	46	61	34	66	39	68	42	68	30	45	27	58	30	41	26	44	15	54	19
10.....	69	37	62	36	62	46	66	48	67	40	64	52	64	41	70	32	46	26	57	30	42	17	41	18	46	18
11.....	68	37	58	38	70	48	64	50	67	40	70	40	68	45	67	30	44	30	58	30	46	24	39	16	47	19
12.....	70	35	66	35	65	47	70	48	66	31	60	35	70	41	70	29	47	30	62	32	42	22	41	17	52	16
13.....	63	36	66	41																						